

## Goal 6: Reduction of Global and Cross-border Environmental Risks

The United States will lead other nations in successful, multilateral efforts to reduce significant risks to human health and ecosystems from climate change, stratospheric ozone depletion and other hazards of international concern.

### *Background and Context*

Many serious environmental risks transcend political boundaries. Consequently, protecting human health and the environment in the United States requires coordination and cooperation at a multinational level. Ecosystems, such as the Great Lakes, are essential to the health and welfare of U.S. citizens; they are shared by neighboring countries and can be preserved only through joint action. Other environmental risks- related to climate change, arctic environments, and biodiversity- are global in scope and can affect the health and welfare of all those who live in the United States both directly and indirectly. These and other threats, unbounded by national borders, need to be addressed on an international scale.

International environmental management programs provide important political and economic benefits. A significant portion of EPA's international work fulfills legally binding treaties, conventions and other international statutory mandates. Sharing regulatory and technological expertise helps the United States, other industrialized nations, and developing nations achieve development consistent with the goals of protecting human health and the environment. As developing nations progress economically, their use of sound environmental practices will prevent the need for costly cleanup and restoration in the future. In addition, the development of effective environmental management practices worldwide, both binding and non-binding, ensures that developing nations that otherwise may opt for growth at the expense of the environment do not competitively disadvantage U.S. companies.

### *Means and Strategy*

To reduce environmental and human health risks along the U.S./Mexico Border and the Great Lakes, EPA employs both voluntary and regulatory measures. Efforts in the U.S./Mexico Border Area utilize a series of workgroups that focus on priority issues ranging from water infrastructure and hazardous waste to outreach efforts focusing on communities and businesses in the border area. The programs were initially conceived in a Federal-to-Federal context. Today, it is clear that in both countries, non-Federal governments are the appropriate entities for developing and carrying out much of the work of protecting the border environment. The experience of the last six years has shown U.S. Border States as key participants in workgroup activities with similar experience on the Mexico

side. In the past year all border states have stressed the need for greater decentralization of environmental authority, and in FY 1999, states and the Federal governments agreed to a set of principles that clarify the roles of the governments and advance state and Tribal participation. Under the new Border 2012 Plan, which was developed with SEMARNAP (EPA's Mexican counterpart), the states and tribes will play a more substantial and meaningful role in:

- Determining how Federal border programs are developed and funded;
- Focusing on developing regional workgroups that empower border citizens; and
- Ensuring that programs devolve from Mexico's Federal government to the Mexican states, with corresponding funding.

Great Lakes Strategy 2002, developed by EPA's Great Lakes National Program Office (GLNPO) and Federal, state, and Tribal agencies in consultation with the public, advances U.S. Great Lakes Water Quality Agreement implementation. Its long-range vision for a healthy natural environment where all beaches are open for swimming, all fish are safe to eat, and the Lakes are protected as a safe source of drinking water is supported by Lakewide Management Plans (LaMPs) and Remedial Action Plans (RAPs) for Areas of Concern (AOCs). Progress is measured through the Integrated Atmospheric Deposition Network and GLNPO's open water, fish, and sediments monitoring.

EPA will meet its climate change objectives by working with both business and other sectors to deliver multiple benefits - from cleaner air to lower energy bills - while continuing to improve overall scientific understanding of climate change and its potential consequences. The core of EPA's climate change efforts are voluntary government/industry partnership programs designed to capitalize on the tremendous opportunities available to consumers, businesses, and organizations to make sound investments in efficient equipment and practices. These voluntary programs remove barriers to existing and emerging technologies in the marketplace, resulting in faster deployment of energy efficient technology into the residential, commercial, transportation, and industrial sectors of the economy. Through its Clean Automotive Technology program, EPA develops unique

new technologies with high potential for improving air quality and reducing energy consumption. The Agency is working in partnership with industry to make some of these technologies commercially available before the end of the decade. In addition, EPA works with other key stakeholders in promoting the development of fuel cell technology for transportation.

To restore and protect the earth's stratospheric ozone layer, EPA works both domestically and internationally to limit the production and use of ozone-depleting substances and to develop safe alternative compounds. EPA also provides education about the risk of environmental and health consequences of overexposure to ultraviolet (UV) radiation.

To address the potential risks associated with persistent and bioaccumulative substances and other toxics, the Agency employs two fundamental approaches. The first approach seeks to minimize the potential harmful impacts of circulating toxic substances through the negotiation and implementation of specific treaties. The second approach focuses on the cooperative efforts of the Organization for Economic Cooperation and Development (OECD) and other international organizations working to develop harmonized methods for testing and assessing the toxicity of chemicals, and for measuring the effects of chemicals to humans and the environment.

In addition to the specific strategies noted above, the Agency employs a variety of means to achieve the environmental objectives outlined in this goal. These include:

- Implementing formal bilateral and multilateral environmental agreements with key countries, executing environmental components of key foreign policy initiatives, and, in partnership with the Department of State, engaging in regional and global negotiations aimed at reducing risks via formal and informal agreements.
- Working with other countries to ensure that domestic and international environmental laws, policies, and priorities are recognized and implemented.
- Partnering with other Federal agencies, states, business, and environmental groups to promote environmentally sustainable technologies and services worldwide.

#### Research

EPA's Global Change Research Program provides the knowledge to allow policy makers to find the most appropriate, science-based solutions to reduce the potential risks to human health and ecosystems posed by climate change. EPA coordinates closely with the interagency Climate Change Science Program (CCSP) and the National Oceanic and Atmospheric Administration's (NOAA) Regional Integrated Science and Assessment

Program.

Several mechanisms are in place to ensure a high-quality Global Change Research program at EPA. The Research Strategies Advisory Committee (RSAC) of EPA's Science Advisory Board (SAB), an independent chartered Federal Advisory Committee Act (FACA) committee, meets annually to conduct an in-depth review and analysis of EPA's Science and Technology account. The RSAC provides its findings to the House Science Committee and sends a written report on the findings to EPA's Administrator after every annual review. Moreover, EPA's Board of Scientific Counselors (BOSC) provides counsel to the Assistant Administrator for the Office of Research and Development (ORD) on the operation of ORD's research program. EPA's scientific and technical work products must also undergo either internal or external peer review, with major or significant products requiring external peer review. The Agency's Peer Review Handbook (2<sup>nd</sup> Edition) codifies procedures and guidance for conducting peer review.

#### **Strategic Objectives**

- Reduce Transboundary Threats to Human and Ecosystem Health in North America
- Reduce Greenhouse Gas Emissions
- Reduce Stratospheric Ozone Depletion
- Protect Public Health and Ecosystems from PBTs and other Toxics
- Increase Domestic and International Use of Cleaner and More Cost-Effective Technologies

## Research

EPA's Global Change Research Program supports one of six Administration FY 2004 Interagency Research and Development Priorities - Climate Change Science and Technology. All activities to assess potential impacts of global climate change will be developed and coordinated with the Climate Change Science Program. Attention is expected to be given to assessing the potential consequences of global change – including climate variability and change, land use changes, and UV radiation – on air quality, water quality, ecosystem health, and human health. The Agency will also assess potential adaptation strategies for building resilience to global change, while responding to both risks and opportunities.

## **External Factors**

EPA's work to reduce global and cross-border environmental risks requires the cooperation of numerous governments and agencies around the world as well as non-governmental organizations and private sector parties. Accordingly, the level of success and the speed at which our objectives are achieved is highly influenced by external factors and events.

While many factors outside of EPA or U.S. control determine a Nation's willingness to participate in international environmental protection efforts (e.g., economic or political considerations within the country), EPA's international policy and technical exchange programs can play an important role in convincing particular nations of both the need and feasibility of participating. Other factors affecting EPA's programs include continued Congressional and public support; cooperation with other Federal agencies, such as the State Department and the U.S. Agency for International Development; and collaboration with state and local groups, business and industry groups, and environmental organizations.

Reduction of air, water, wastewater and solid waste problems along the U.S. border with Mexico will require continued commitment by national, regional and local environmental officials in that country.

Progress on Great Lakes goals and measures is dependent on actions of others, both within and outside of the Great Lakes. Key Great Lakes partners, including Canada, state regulatory agencies, the Corps of Engineers, the National Oceanic and Atmospheric Administration (NOAA), the Fish and Wildlife Service (USFWS), and the Natural Resources Conservation Service (NRCS) must act together to continue environmental progress.

The U.S. Global Change Research Program (USGCRP) was established in 1990 by the U.S. Global Change Research Act. The 1990 Act mandates that the USGCRP conduct periodic assessments of the

consequences of global change for the U.S. EPA is one of ten member agencies of the USGCRP. The EPA program relies on partnerships with academic institutions to fulfill its obligations to the USGCRP National Assessment effort.

EPA's efforts to reduce global and regional threats to oceans and the atmosphere require the active cooperation of other countries. Health and environmental benefits resulting from the multi-billion dollar investment by U.S. companies to reduce emissions of stratospheric ozone-depleting compounds could be completely undone by unabated emissions of these chemicals in other countries. Fortunately, the Montreal Protocol on Substances that Deplete the Ozone Layer has secured the participation of most countries, including major producers and consumers of these chemicals. Recovery of the stratospheric ozone layer is contingent upon international adherence to the commitments made under the Montreal Protocol. UV risk-reduction efforts are impacted by the rate of recovery of the ozone layer and socio-behavioral norms and attitudes regarding sun protection.

The success of international agreements on toxic substances is contingent on the developed world providing adequate levels of funding and timely technical assistance to developing countries, especially key source countries. Such funding and technical assistance is necessary in order for these countries to develop the necessary skill levels and infrastructure for implementing these environmental agreements. The ultimate success of these international efforts is contingent on not only the provision of policy and technical leadership by EPA and other Federal government entities, but also the ability to lead through the provision and leveraging of financial and technical assistance.

**Resource Summary**  
(Dollars in thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Reduction of Global and Cross-border Environmental Risks	\$216,575.3	\$269,727.2	\$263,847.5	(\$5,879.7)
Reduce Transboundary Threats to Human and Ecosystem Health in North America.	\$33,693.5	\$98,185.9	\$89,394.6	(\$8,791.3)
Reduce Greenhouse Gas Emissions.	\$146,393.0	\$136,953.4	\$138,105.8	\$1,152.4
Reduce Stratospheric Ozone Depletion.	\$14,749.8	\$15,813.3	\$17,540.3	\$1,727.0
Protect Public Health and Ecosystems from PBTs and other Toxics.	\$5,391.1	\$6,173.6	\$6,680.7	\$507.1
Increase Domestic and International Use of Cleaner and More Cost-Effective Technologies.	\$16,347.9	\$12,601.0	\$12,126.1	(\$474.9)
Total Workyears	530.4	504.7	502.3	-2.4

## Objective 1: Reduce Transboundary Threats to Human and Ecosystem Health in North America.

By 2005, reduce transboundary threats to human health and shared ecosystems in North America, including marine and Arctic environments, consistent with our bilateral and multilateral treaty obligations in these areas, as well as our trust responsibility to tribes.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Reduce Transboundary Threats to Human and Ecosystem Health in North America.	\$33,693.5	\$98,185.9	\$89,394.6	(\$8,791.3)
Environmental Program & Management	\$23,988.9	\$23,185.9	\$39,394.6	\$16,208.7
State and Tribal Assistance Grants	\$9,704.6	\$75,000.0	\$50,000.0	(\$25,000.0)
Total Workyears	81.3	80.8	85.8	5.0

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Facilities Infrastructure and Operations	\$1,082.2	\$1,127.7	\$1,188.6	\$60.9
Great Lakes Legacy Act	\$0.0	\$0.0	\$15,000.0	\$15,000.0
Great Lakes National Program Office	\$14,929.7	\$15,128.2	\$15,392.0	\$263.8
Legal Services	\$443.1	\$476.2	\$496.9	\$20.7
Management Services and Stewardship	\$333.4	\$373.7	\$32.7	(\$341.0)
Regional Management	\$0.0	\$0.0	\$88.7	\$88.7
Regional and Global Environmental Policy Development	\$931.5	\$715.5	\$711.3	(\$4.2)
U.S. - Mexico Border	\$4,149.5	\$5,364.6	\$6,484.4	\$1,119.8
Water Infrastructure:Mexico Border	\$75,000.0	\$75,000.0	\$50,000.0	(\$25,000.0)

## Annual Performance Goals and Measures

### U.S. - Mexico Border Water/Wastewater Infrastructure

- In 2004 Increase the number of residents in the Mexico border area who are protected from health risks, beach pollution and damaged ecosystems from nonexistent and failing water and wastewater treatment infrastructure by providing improved water and wastewater service.
- In 2003 Increase the number of residents in the Mexico border area who are protected from health risks, beach pollution and damaged ecosystems from nonexistent and failing water and wastewater treatment infrastructure by providing improved water and wastewater service.
- In 2002 Increase the number of residents to 720,000 in the Mexico border area who are protected from health risks, beach pollution and damaged ecosystems from nonexistent and failing water and wastewater treatment infrastructure by providing improved water and wastewater service.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Number of additional people in Mexico border area protected from health risks, because of adequate water & wastewater sanitation systems funded through border environmental infrastructure funding.	720,000	900,000	990,000	People

Baseline: There are approximately 11 million residents in the border area.

### Great Lakes: Ecosystem Assessment

- In 2004 Great Lakes ecosystem components will improve, including progress on fish contaminants, beach closures, air toxics, and trophic status.
- In 2003 Great Lakes ecosystem components will improve, including progress on fish contaminants, beach closures, air toxics, and trophic status.
- In 2002 By removing or containing contaminated sediments, 100,000-200,000 pounds of persistent toxics which could adversely affect human health will no longer be biologically available through the food chain. This contributes to decreasing fish contaminants and advances the goal of removing fish advisories

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Long-term concentration trends of toxics (PCBs) in Great Lakes top predator fish.	Declining	5%	5%	Annual decrease
Long-term concentration trends of toxic chemicals in the air.	Declining	7%	7%	Annual decrease
Total phosphorus concentrations (long-term) in the Lake Erie Central Basin.	Mixed	10	10	Ug/l

Baseline: Identified targets are currently based on historic trends. The trend (starting with 1972 data) for PCBs in Great Lakes top predator fish toxics is expected to be less than 2 parts per million (the FDA action level), but far above the Great Lakes Initiative target or levels at which fish advisories can be removed. The trend (starting with 1992 data) for PCB concentrations in the air is expected to range from 50 to 250 picograms per cubic meter. The trend (starting with 1983 data) for phosphorus concentrations is expected to range from 4 to 10 parts per billion, levels established in the Great Lakes Water Quality Agreement. The 1970 baseline of oxygen depletion of the Lake Erie central basin is 3.8 mg/liter/month. EPA is working with its partners to refine targets within the next 3 years.

### Mexico Border Outreach

- In 2004 Protect the public health and the environment in the US- Mexico border region.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Increase by 1.5 million the number of people with adequate water and wastewater sanitation systems.			1.5 million	Population served
Train farmworkers on pesticide risks and safe handling, including ways of minimizing families' and children's risks			50	Training Sessions

Baseline: The US-Mexico border region extends more than 3,100 kilometers (2,000 miles) from the Gulf of Mexico to the Pacific Ocean, and 62.5 miles on each side on the international border. More than 11.8 million people reside along the border. The figure is expected to reach 19.4 million by 2020. Ninety percent of the population reside in the 14 paired, interdependent sister cities.

Rapid population growth in urban areas has resulted in unplanned development, greater demand for land and energy, increased traffic congestion, increased waste generation, overburdened or unavailable waste treatment and disposal facilities, and more frequent chemical emergencies. Rural areas suffer from exposure to airborne dust, pesticide use, and inadequate water supply and waste treatment facilities. EPA, other U.S. Federal agencies, and the Government of Mexico have partnered to address these environmental problems.

## ***Verification and Validation of Performance Measures***

### **Performance Measure: Concentration trends of toxics (PCBs) in Great Lakes top predator fish**

#### **Performance Database: Great Lakes National Program Office (GLNPO) base monitoring program<sup>1</sup>.**

**Data Source:** GLNPO's ongoing base monitoring program, which has included work with cooperating organizations such as the U.S. Geological Survey (USGS) and the U.S. Fish and Wildlife Survey (USFWS).

**Methods, Assumptions, and Suitability:** This indicator provides concentrations of selected organic contaminants in sport fish from the Great Lakes to: (1) determine time trends in contaminant concentrations, (2) assess impacts of contaminants on the fishery, and (3) to assess potential human and wildlife exposures from consuming contaminated sport fish. The data provide two elements of contaminant concentrations: The first element includes data from 600-700 mm lake trout (*Salvelinus namaycush*) whole fish composites (5 fish) from each of the lakes (walleye, *Stizostedion vitreum vitreum*, in Lake Erie). These data are used to assess time trends in organic contaminants in the open waters of the Great Lakes, using fish as biomonitors. These data can also be used to assess the risks of such contaminants on the health of this important fishery, and on wildlife that consume them.

The second element of the indicator focuses on assessing human exposures via consumption of popular sport fish. Coho (*Oncorhynchus kisutch*) and chinook salmon (*Oncorhynchus tshawytscha*) from each lake (rainbow trout, *Salmo gairdneri*, in Lake Erie) are collected during the fall spawning run, and composite fillets (5 fish) are analyzed for organic contaminants to assess human exposure. The Coho salmon spawn at 3 years of age, and so their body burdens reflect a more focused and consistent exposure time compared to the lake trout which may integrate exposures over 4 to 10 yrs depending on the lake. Chinook salmon spawn after 4-5 years, and have higher (and thus more detectable) concentrations than the Coho salmon and also represent a consistent exposure time. Thus time trends for consistent age fish as well as consistent size fish can be assessed from these data.

**QA/QC Procedures:** GLNPO has a Quality Management system in place that conforms to the EPA quality management order and is audited every 3 years in accordance with Federal policy for Quality Management. The current Quality Management Plan that describes this program is undergoing revision and should be approved by the end of February, 2003<sup>2</sup>. The QA plan that supports the fish contaminant program is approved and available on request<sup>3</sup>. The plan that describes the field sampling program is in draft form and should be completed by April 2003<sup>4</sup>.

**Data Quality Review:** GLNPO's quality management system has been evaluated as "outstanding" in previous peer and management reviews<sup>5</sup>. GLNPO has implemented all recommendations from these external audits and complies with Agency Quality standards.

**Data Limitations:** The top predator fish (lake trout) program was designed specifically for lakewide trends. It is not well suited to portray localized changes.

**Error Estimate:** The goal of fish contaminant program is for the contaminant levels in the collected fish to be +/- 20 to 30 % of the actual population values. Although we have observed slight differences between fish contaminant concentrations collected at different sights, when we compare the annual **trends** of fish contaminant burdens between sites we see no differences.

**New/Improved Data or Systems:** The GLENDa database is a significant new system with enhanced capabilities. Existing and future fish data will be added to GLENDa.

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**Performance Measure: Concentration trends of toxic chemicals in the air.**

**Performance Database:** Great Lakes National Program Office (GLNPO) integrated atmospheric deposition network (IADN) operated jointly with Canada<sup>1</sup>.

**Data Source:** GLNPO and Environment Canada are the principal sources of the data. Data also come through in-kind support and information sharing with other Federal agencies, with Great Lake States, and with Canada.

**Methods, Assumptions, and Suitability:** There are five master IADN stations, one for each lake, which are supplemented by satellite stations in other locations. The master stations are located in remote areas and are meant to represent regional background levels. Concentrations from the master stations are used for the performance measure. Concentrations from the satellite station in Chicago are also sometimes used to demonstrate the importance of urban areas to atmospheric deposition to the Lakes.

Air samples are collected for 24 hours using hi-volume samplers containing an adsorbent. Precipitation samples are collected as 28-day composites. Laboratory analysis protocols generally call for solvent extraction of the organic sampling media with addition of surrogate recovery standards. Extracts are then concentrated followed by column chromatographic cleanup, fractionation, nitrogen blow-down to small volume (about 1 mL) and injection (typically 1 µL) into GC-ECD or GC-MS instruments.

All IADN data are loaded and quality controlled using the Research Database Management System (RDMQ), a SAS program. RDMQ provides a unified set of quality assured data including flags for each data point that can be used to evaluate the usability of the data. Statistical summaries of annual concentrations are generated by the program and used as input into an atmospheric loading calculation. The loadings calculation is described in detail in the Technical Summary referenced below. However, the averaged concentrations rather than the loadings are used in the performance measure.

**QA/QC Procedures:** GLNPO has a Quality Management system in place, which conforms to the EPA quality management order and is audited every 3 years in accordance with Federal policy for Quality Management, currently being revised. Quality Assurance Project Plans are in place for the laboratory grantee, as well as for the network as a whole. A jointly-funded QA contractor conducts laboratory audits and tracks QA statistics. Data from all contributing agencies are quality-controlled using the SAS-based system.

**Data Quality Review:** GLNPO's quality management system has been evaluated as "outstanding" in previous peer and management reviews<sup>2</sup>. This program has a joint Canadian US quality system and workgroup that meets twice a year. GLNPO has implemented all recommendations from these external audits and complies with Agency Quality standards<sup>3</sup>.

A regular set of laboratory and field blanks is taken and recorded for comparison to the IADN field samples. In addition, a suite of chemical surrogates and internal standards is used extensively in the analyses. A jointly-funded QA contractor conducts laboratory audits and intercomparisons and tracks QA statistics. As previously mentioned, data from all contributing agencies are quality-controlled using a SAS-based system.

**Data Limitations:** The sampling design is dominated by rural sites that under emphasize urban contributions to deposition; thus although the data is very useful for trends information, there is less assurance of the representativeness of deposition to the whole lake. There are gaps in open lake water column organics data, thus limiting our ability to calculate atmospheric loadings.

**Error estimate:** Concentrations have an error of +/- 40%, usually less. Differences between laboratories have been found to be 40% or less. This is outstanding given the very low levels of these pollutants in the air and the difficulty in analysis. The performance measure examines the long-term trend.

**New/Improved Data or Systems:** GLNPO expects to post joint data that has passed quality review to < <http://binational.net/> >, a newly created joint international web site.

**References:**

"Great Lakes National Program Office Indicators. Air Indicators." <http://www.epa.gov/glnpo/glindicators/atmospheric.html>

Details of these analyses can be found in the Laboratory Protocol Manuals or the agency project plans, which can be found on the IADN resource page at:

[http://www.msc.ec.gc.ca/iadn/resources/resources\\_e.html](http://www.msc.ec.gc.ca/iadn/resources/resources_e.html)

Overall results of the project can be found in “*Technical Summary of Progress under the Integrated Atmospheric Deposition Program 1990-1996*” and the Draft “*Technical Summary of Progress under the Integrated Atmospheric Deposition 1997-2002*”. The former can also be found on the IADN resource page.

“*GLNPO Management Systems Review of 1999.*” Unpublished - in US EPA Great Lakes National Program Office files.

“*Integrated Atmospheric Deposition Network Quality Assurance Program Plan - Revision 1.1.*” Environment Canada and USEPA. June 29, 2001. Unpublished - in USEPA Great Lakes National Program Office files.

**Performance Measure: Long term dissolved oxygen depletion trend in Lake Erie.**

**Performance Database:** Great Lakes National Program Office (GLNPO) limnology program.<sup>1</sup>

**Data Source:** GLNPO's ongoing limnology program.

**Methods, Assumptions, and Suitability:** The GLNPO Open Lake Limnology Program has been operational since 1983 for three of Great Lakes (Michigan, Huron, Erie). In 1986 Lake Ontario was added to the program and in 1992 Lake Superior was added.. Methods and suitability of data discussions can be found in *Sampling and Analytical Procedures for GLNPO's Open Lake Water Quality Survey of the Great Lakes, March 2002.*<sup>2</sup>

**QA/QC Procedures:** GLNPO has a Quality Management system in place that conforms to the EPA quality management order and is audited every 3 years in accordance with Federal policy for Quality Management. The current Quality Management Plan that describes this program is undergoing revision and should be approved by the end of February, 2003<sup>3</sup>. The QA plan that supports the limnology program is approved and available on request (*Sampling and Analytical Procedures for GLNPO's Open Lake Water Quality Survey of the Great Lakes, March 2002*). GLNPO participates in a shared performance evaluation sample program with numerous laboratories in Canada and the US and has performed exceptionally for these parameters.

**Data Quality Review:** GLNPO's quality management system has been given “outstanding” evaluations in previous peer and management reviews. GLNPO has implemented all recommendations from these external audits and complies with Agency Quality standards.

**Data Limitations:** The sampling design is based on the Great Lakes International Surveillance Program (1986). It provides coverage of most of the Lake Erie Central basin, but does not provide definitive boundaries for the anoxic zone.

**Error Estimate:** Environmental measurements are systematically crosschecked by independent methodologies to ensure accuracy within 10% relative percent difference between methodologies. For calculation of annual rates of oxygen depletion, corrections for standardized environmental conditions improve historical correlation coefficients of annual depletion rate over time from  $r = 0.45$  to  $r = 0.76$ . Inherent ecosystem variability is far greater than measurement error. (See Rosa, F. and N. Burns. 1987. Lake Erie Central Basin Oxygen Depletion Changes from 1929 - 1980. J. Great Lakes Res. 13(4):684-696.)

**New/Improved Data or Systems:** The GLEND database is a significant new system with enhanced capabilities. Existing and future data will be added to GLEND.

## References:

“*Great Lakes National Program Office Indicators. Dissolved Oxygen Depletion Trend in Lake Erie.*”  
<http://www.epa.gov/glnpo/glindicators/water/oxygena.html>

Published data audits. Data have passed peer review for publication in scientific journal. See. Bertram, P. 1993. Total phosphorus and dissolved oxygen trends in the Central Basin of Lake Erie, 1970-1991. J. Great Lakes Res. 19(2):224-236. Results of system and data audits are maintained with the annual files.

Methods. See: Rosa, F. and N. Burns. 1987. Lake Erie Central Basin Oxygen Depletion Changes from 1929 - 1980. J. Great Lakes Res. 13(4):684-696.): See International Joint Commission. 1986. Great Lakes International Surveillance Program - Lake Erie. Windsor, Ontario.

QMP: Quality Management Plan for the Great Lakes National Program Office, Final Draft July 2002, L. Blume GLNPO QA Manager, US EPA, 77 West Jackson, Chicago, IL 60604 (previously approved 9/98).

QAPP: Dissolved Oxygen and Temperature Profiles for the Central Basin of Lake Erie. Quality Assurance Project Plan. 2001. U.S. EPA, Great Lakes National Program Office, Chicago.

User guides: [www.epa.gov/glnpo/glindicators/water/oxygena.html](http://www.epa.gov/glnpo/glindicators/water/oxygena.html)

“Quality Management Plan for the Great Lakes National Program Office.” October 2002, EPA 905-R-02-009.

**Performance Measure: People in the Mexico border area protected from health risks because of adequate water and wastewater sanitation systems funded through border environmental infrastructure funding (cumulative).**

**Performance Database:** No formal EPA database. Performance is tracked and reported quarterly by Border Environment Cooperation Commission (BECC) and North American Development Bank (NADBank). Data field is “population served.”

**Data Source:** 1) U.S. population figures from the 2000 U.S. Census<sup>1</sup>; 2) Data on U.S. and Mexican populations served by “certified” water/wastewater treatment improvements from the BECC; 3) Data on projects funded from the NADBank.

**Methods, Assumptions and Suitability:** Summation of population data from BECC and NADBank. U.S. Census data are assumed to be correct and suitable.

**QA/QC Procedures:** EPA Headquarters is responsible for evaluation of reports from BECC and NADBank on drinking water and wastewater sanitation projects. Regional representatives attend meetings of the certifying and financing entities for border projects (BECC and NADBank) and conduct site visits of projects underway to ensure the accuracy of information reported<sup>2</sup>.

**Data Quality Review:** Regional representatives attend meetings of the certifying and financing entities for border projects (BECC and NADBank) and conduct site visits of projects underway to ensure the accuracy of information reported.

**Data Limitations:** None

**Error Estimate:** Same as census data.

**New/Improved Data or Systems:** None.

#### References:

U.S. Department of Commerce, Bureau of the Census, (Washington, DC: U.S. Department of Commerce, 1990). *Instituto Nacional de Estadística, Geografía y Informática, Aguascalientes*, Total Population by State (1990).

Border Environment Cooperation Commission (BECC), Cd Juárez, Chih, and North American Development Bank (NADBank), (San Antonio, TX, 2002).

#### Statutory Authorities

Clean Water Act

Clean Air Act

Toxic Substances Control Act

Resource Conservation and Recovery Act

Pollution Prevention Act

Federal Insecticide, Fungicide, and Rodenticide Act

Organotin Antifouling Paint Control Act

Great Lakes Legacy Act

Annual Appropriation Acts

#### US-Canada Agreements

1997 Canada-U.S. Great Lakes Binational Toxics Strategy

1996 Habitat Agenda

1990 Great Lakes Critical Programs Act

1987 Great Lakes Water Quality Agreement

1987 Montreal Protocol on Ozone Depleting Substances

1978 Great Lakes Water Quality Agreement (GLWQA)

1909 The Boundary Waters Treaty

North American Free Trade Agreement

## Objective 2: Reduce Greenhouse Gas Emissions.

By 2010, U.S. greenhouse gas emissions will be substantially reduced through programs and policies that also lead to reduced costs to consumers of energy and reduced emissions leading to cleaner air and water. In addition, EPA will carry out assessments and analyses and promote education to provide an understanding of the consequences of global change needed for decision making.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Reduce Greenhouse Gas Emissions.	\$146,393.0	\$136,953.4	\$138,105.8	\$1,152.4
Environmental Program & Management	\$99,976.1	\$98,104.8	\$99,256.9	\$1,152.1
Science & Technology	\$46,416.9	\$38,848.6	\$38,848.9	\$0.3
Total Workyears	329.9	303.9	299.0	-4.9

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Climate Change Research	\$21,350.5	\$21,729.3	\$21,528.6	(\$200.7)
Climate Protection Program: Buildings	\$48,571.3	\$49,820.5	\$48,324.5	(\$1,496.0)
Climate Protection Program: Carbon Removal	\$1,549.7	\$1,576.3	\$1,734.5	\$158.2
Climate Protection Program: Industry	\$25,368.6	\$25,673.1	\$26,439.1	\$766.0
Climate Protection Program: International Capacity Building	\$6,982.8	\$7,086.5	\$6,608.1	(\$478.4)
Climate Protection Program: State and Local Climate Change Program	\$2,245.6	\$2,275.2	\$2,569.0	\$293.8
Climate Protection Program: Transportation	\$30,830.7	\$21,567.2	\$22,934.7	\$1,367.5
Congressionally Mandated Projects	\$750.0	\$0.0	\$0.0	\$0.0
Facilities Infrastructure and Operations	\$4,461.0	\$4,019.1	\$4,530.9	\$511.8
Legal Services	\$328.2	\$354.5	\$369.9	\$15.4
Management Services and Stewardship	\$2,855.2	\$2,851.7	\$3,030.5	\$178.8
Planning and Resource Management	\$0.0	\$0.0	\$36.0	\$36.0

## Annual Performance Goals and Measures

### Reduce Greenhouse Gas Emissions

- In 2004 Greenhouse gas emissions will be reduced from projected levels by approximately 81 MMTCE per year through EPA partnerships with businesses, schools, state and local governments, and other organizations.
- In 2003 Greenhouse gas emissions will be reduced from projected levels by approximately 72.2 MMTCE per year through EPA partnerships with businesses, schools, state and local governments, and other organizations.
- In 2002 On track to ensure that greenhouse gas emissions will be reduced from projected levels by approximately 65.8 MMTCE per year through EPA partnerships with businesses, schools, state and local governments, and other organizations.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Annual Greenhouse Gas Reductions - All EPA Programs	On Track	72.2	81.3	MMTCE
Greenhouse Gas Reductions from EPA's Buildings Sector Programs (ENERGY STAR)	On Track	19.2	21.4	MMTCE
Greenhouse Gas Reductions from EPA's Industrial Efficiency/Waste Management Programs	On Track	6.7	7.4	MMTCE
Greenhouse Gas Reductions from EPA's Industrial Methane Outreach Programs	On Track	17.0	18.1	MMTCE
Greenhouse Gas Reductions from EPA's Industrial HFC/PFC Programs	On Track	24.9	29.6	MMTCE
Greenhouse Gas Reductions from EPA's Transportation Programs	On Track	2.4	2.8	MMTCE
Greenhouse Gas Reductions from EPA's State and Local Programs	On Track	2.0	2.0	MMTCE

**Baseline:** The baseline for evaluating program performance is a projection of U.S. greenhouse gas emissions in the absence of the U.S. climate change programs. The baseline was developed as part of an interagency evaluation of the U.S. climate change programs in 2002, which built on similar baseline forecasts developed in 1997 and 1993. Baseline data for carbon emissions related to energy use is based on data from the Energy Information Agency (EIA). Baseline data for non-carbon dioxide (CO<sub>2</sub>) emissions, including nitrous oxide and other high global warming potential gases are maintained by EPA. Baseline information is discussed at length in the U.S. Climate Action Report 2002 ([www.epa.gov/globalwarming/publications/car/index.html](http://www.epa.gov/globalwarming/publications/car/index.html)), which provides a discussion of differences in assumptions between the 1997 baseline and the 2002 update, including which portion of energy efficiency programs are included in the estimates. EPA develops the non-CO<sub>2</sub> emissions baselines and projections using information from partners and other sources. EPA continues to develop annual inventories as well as update methodologies as new information becomes available.

### Reduce Energy Consumption

- In 2004 Reduce energy consumption from projected levels by more than 110 billion kilowatt hours, contributing to over \$7.5 billion in energy savings to consumers and businesses.
- In 2003 Reduce energy consumption from projected levels by more than 95 billion kilowatt hours, contributing to over \$6.5 billion in energy savings to consumers and businesses.
- In 2002 On track to ensure that energy consumption is reduced from projected levels by more than 85 billion kilowatt hours, contributing to over \$10 billion in energy savings to consumers and businesses.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Annual Energy Savings - All EPA Programs	On Track	95	110	Billion kWh

**Baseline:** The baseline for evaluating program performance is a projection of U.S. greenhouse gas emissions in the absence of the U.S. climate change programs. The baseline was developed as part of an interagency evaluation of the U.S. climate change programs in 2002, which built on similar baseline forecasts developed in 1997 and 1993. Baseline data for carbon emissions related to energy use is based on data from the Energy Information Agency (EIA). Baseline data for non-carbon dioxide (CO<sub>2</sub>) emissions, including nitrous oxide and other high global warming potential gases are maintained by EPA. Baseline information is discussed at length in the U.S. Climate Action Report 2002 ([www.epa.gov/globalwarming/publications/car/index.html](http://www.epa.gov/globalwarming/publications/car/index.html)), which provides a discussion of differences in assumptions between the 1997 baseline and the 2002 update, including which portion of energy efficiency programs are included in the estimates. EPA develops the non-CO<sub>2</sub> emissions baselines and projections using

information from partners and other sources. EPA continues to develop annual inventories as well as update methodologies as new information becomes available.

### Clean Automotive Technology

In 2004 Transfer hybrid powertrain components, originally developed for passenger car applications, to meet size, performance, durability, and towing requirements of Sport Utility Vehicle and urban delivery vehicle applications with an average fuel economy improvement of 25% over the baseline.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request 25.2	MPG
Fuel Economy of EPA-Developed SUV Hybrid Vehicle over EPA Driving Cycles Tested				

Baseline: The average fuel economy of all SUVs sold in the US in 2001 is 20.2 mpg. Values for 2002, 2003, and 2004 represent 15%, 20%, and 25% improvements over this baseline, respectively. The long-term target is to demonstrate a practical and affordable powertrain that is 30% more efficient by 2005, and 100% more efficient by 2010.

### Validation and Verification of Performance Measures

#### FY 2004 Performance Measure: Annual Greenhouse Gas Emissions Reductions overall and by Sector

**Performance Database:** Climate Protection Partnerships Division Tracking System.

**Data Source:** Baseline data for carbon emissions related to energy use comes from the Energy Information Agency (EIA). Baseline data for non-carbon dioxide (CO<sub>2</sub>) emissions, including nitrous oxide and other high global warming potential gases, are maintained by EPA. Baseline information is discussed at length in the U.S. Climate Action Report 2002. EPA develops the carbon and non-CO<sub>2</sub> emissions baselines and projections using information from partners and other sources. Data collected by EPA's voluntary programs include partner reports on facility-specific improvements (e.g. space upgraded, kilowatt-hours (kWh) reduced), national market data on shipments of efficient products, and engineering measurements of equipment power levels and usage patterns.

**Methods, Assumptions, and Suitability:** Most of the voluntary climate programs' focus is on energy efficiency. For these programs, EPA estimates the expected reduction in electricity consumption in kilowatt-hours (kWh). Emissions prevented are calculated as the product of the kWh of electricity saved and an annual emission factor (e.g., MMTCE prevented per kWh). Other programs focus on directly lowering greenhouse gas emissions (e.g., Natural Gas STAR, Landfill Methane Outreach, and Coalbed Methane Outreach); for these, greenhouse gas emission reductions are estimated on a project-by-project basis. EPA maintains a "tracking system" for emissions reductions.

**QA/QC Procedures:** EPA devotes considerable effort to obtaining the best possible information on which to evaluate emissions reductions from voluntary programs. Peer-reviewed carbon-conversion factors are used to ensure consistency with generally accepted measures of GHG emissions, and peer-reviewed methodologies are used to calculate GHG reductions from these programs.

**Data Quality Review:** The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. The second such interagency evaluation, led by the White House Council on Environmental Quality, examined the status of U.S. climate change programs. The review included participants from EPA and the Departments of State, Energy, Commerce, Transportation, and Agriculture. The results were published in the *U.S. Climate Action Report-2002* as part of the United States' submission to the Framework Convention on Climate Change (FCCC). The previous evaluation was published in the *U.S. Climate Action Report-1997*. A 1997 audit by EPA's Office of the Inspector General concluded that the climate programs examined "used good management practices" and "effectively estimated the impact their activities had on reducing risks to health and the environment..."

**Data Limitations:** These are indirect measures of GHG emissions (carbon conversion factors and methods to convert material-specific reductions to GHG emissions reductions). Also, the voluntary nature of the programs may affect reporting. Further research will be necessary in order to fully understand the links between GHG concentrations and specific environmental impacts, such as impacts on health, ecosystems, crops, weather events, and so forth.

**Error Estimate:** These are indirect measures of GHG emissions. Although EPA devotes considerable effort to obtaining the best possible information on which to evaluate emissions reductions from voluntary programs, errors in the performance data could be introduced through uncertainties in carbon conversion factors, engineering analyses, and econometric analyses.

**New/Improved Data or Systems:** The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. EPA continues to update inventories and methodologies as new information becomes available.



**References:** The U.S. Climate Action Report 2002 is available at: [www.epa.gov/globalwarming/publications/car/index.html](http://www.epa.gov/globalwarming/publications/car/index.html). The accomplishments of many of EPA's voluntary programs are documented in the Climate Protection Partnerships Division Annual Report. The most recent version is *The Power of Partnerships: Energy Star and Other Voluntary Programs*, Climate Protection Partnerships Division 2001 Annual Report, EPA 430-R-02-010, July, 2002, available at: <http://www.epa.gov/cpd/pdf/cpdann01.pdf>

#### **FY 2004 Performance Measure: Annual Energy Savings**

**Performance Database:** Climate Protection Partnerships Division Tracking System

**Data Source:** Data collected by EPA's voluntary programs include partner reports on facility specific improvements (e.g. space upgraded, kilowatt-hours (kWh) reduced), national market data on shipments of efficient products, and engineering measurements of equipment power levels and usage patterns.

**Methods, Assumptions, and Suitability:** Most of the voluntary climate programs' focus is on energy efficiency. For these programs, EPA estimates the expected reduction in electricity consumption in kilowatt-hours (kWh). Emissions prevented are calculated as the product of the kWh of electricity saved and an annual emission factor (e.g., MMTCE prevented per kWh). Other programs focus on directly lowering greenhouse gas emissions (e.g., Natural Gas STAR, Landfill Methane Outreach, and Coalbed Methane Outreach); for these, greenhouse gas emission reductions are estimated on a project-by-project basis. EPA maintains a "tracking system" for energy reductions.

Energy bill savings are calculated as the product of the kWh of energy saved and the cost of electricity for the affected market segment (residential, commercial, or industrial) taken from the Energy Information Administration's (EIA) *Annual Energy Outlook 2002* and *Annual Energy Review 2000* for each year in the analysis (1993-2012). Energy bill savings also include revenue from the sale of methane and/or the sale of electricity made from captured methane. The net present value (NPV) of these savings was calculated using a 4-percent discount rate and a 2001 perspective.

**QA/QC Procedures:** EPA devotes considerable effort to obtaining the best possible information on which to evaluate energy savings from its voluntary programs.

**Data Quality Review:** The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. The second such interagency evaluation, led by the White House Council on Environmental Quality, examined the status of U.S. climate change programs. The review included participants from EPA and the Departments of State, Energy, Commerce, Transportation, and Agriculture. The results were published in the *U.S. Climate Action Report-2002* as part of the United States' submission to the Framework Convention on Climate Change (FCCC). The previous evaluation was published in the *U.S. Climate Action Report-1997*. A 1997 audit by EPA's Office of the Inspector General concluded that the climate programs examined "used good management practices" and "effectively estimated the impact their activities had on reducing risks to health and the environment..."

**Data Limitations:** The voluntary nature of programs may affect reporting. In addition, errors in the performance data could be introduced through uncertainties in engineering analyses, and econometric analyses.

**Error Estimate:** Although EPA devotes considerable effort to obtaining the best possible information on which to evaluate emissions reductions from voluntary programs, errors in the performance data could be introduced through uncertainties in engineering analyses and econometric analyses.

**New/Improved Data or Systems:** The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. EPA continues to update inventories and methodologies as new information becomes available.

**References:** The U.S. Climate Action Report 2002 is available at: [www.epa.gov/globalwarming/publications/car/index.html](http://www.epa.gov/globalwarming/publications/car/index.html). The accomplishments of many of EPA's voluntary programs are documented in the Climate Protection Partnerships Division Annual Report. The most recent version is *The Power of Partnerships: Energy Star and Other Voluntary Programs*, Climate Protection Partnerships Division 2001 Annual Report, EPA 430-R-02-010, July, 2002, available at: <http://www.epa.gov/cpd/pdf/cpdann01.pdf>

#### **FY 2004 Performance Measure: Fuel Economy of EPA-Developed SUV Hybrid Vehicle over EPA Driving Cycles Tested**

**Data Source:** EPA fuel economy tests performed at the National Vehicle and Fuel Emissions Laboratory, Ann Arbor, Michigan (NVFEL.)

**QA/QC Procedures:** EPA fuel economy tests are performed in accordance with the EPA Federal Test Procedure and all applicable QA/QC procedures. Available on the Internet:

<http://www.epa.gov/otaq/sftp.htm>.

**Methods, Assumptions and Suitability:** N/A

**Data Quality Reviews:** EPA's National Vehicle and Fuel Emissions laboratory is recognized as a national and international facility for fuel economy and emissions testing. NVFEL is also the reference point for private industry.

**Data Limitations:** Primarily due to EPA regulations, vehicle fuel economy testing is a well established and precise exercise with extremely low test to test variability (well less than 5%). Additional information is available on the Internet: <http://www.epa.gov/otaq/testdata.htm>. The one relevant issue is that fuel economy testing of hybrid vehicles (i.e., more than one source of onboard power) is more complex than testing of conventional vehicles. EPA has not yet published formal regulations to cover hybrid vehicles. However, relevant information is available on the Internet: [http://www.ctts.nrel.gov/analysis/hev\\_test/procedures.shtml](http://www.ctts.nrel.gov/analysis/hev_test/procedures.shtml)

**Error Estimate:** N/A

**New/Improved Data or Systems:** EPA is using solid engineering judgement and consultations with other expert organizations (including major auto companies) to develop internal procedures for testing hybrid vehicles.

**References:** See <http://www.epa.gov/otaq/testproc.htm> for additional information about testing and measuring emissions at the NVFEL.

## Research

EPA's Global Change Research Program is closely coordinated with the Administration's Climate Change Science Program (CCSP), which was created under the auspices of the Committee on Climate Change Science and Technology Integration (CCCSTI). In addition, the Agency will collaborate closely with NOAA's Regional Integrated Science and Assessment Program to assure appropriate prioritization and efficiency, to avoid duplication and to assure consistently high standards of scientific review for all aspects of supported studies and analyses.

## Statutory Authorities

Clean Air Act, 42 U.S.C. 7401 et seq. - Sections 102, 103, 104, and 108

Clean Water Act, 33 U.S.C. 1251 et seq. - Section 104

Solid Waste Disposal Act, 42 U.S.C. 6901 et seq. - Section 8001

Pollution Prevention Act, 42 U.S.C. 13101 et seq. - Sections 6602, 6603, 6604, and 6605

National Environmental Policy Act, 42 U.S.C. 4321 et seq. - Section 102

Global Climate Protection Act, 15 U.S.C. 2901 - Section 1103

Federal Technology Transfer Act, 15 U.S.C. - Section 3701a

## Research

U.S. Global Change Research Program Act of 1990

United Nations Framework Convention on Climate Change

National Climate Program Act of 1997

## Objective 3: Reduce Stratospheric Ozone Depletion.

By 2005, ozone concentrations in the stratosphere will have stopped declining and slowly begun the process of recovery. In addition, public education to promote behavior change will result in reduced risk to human health from ultraviolet (UV) overexposure, particularly among susceptible subpopulations such as children.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Reduce Stratospheric Ozone Depletion.	\$14,749.8	\$15,813.3	\$17,540.3	\$1,727.0
Environmental Program & Management	\$14,749.8	\$15,813.3	\$17,540.3	\$1,727.0
Total Workyears	30.1	29.7	30.3	0.6

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Facilities Infrastructure and Operations	\$489.3	\$419.8	\$489.7	\$69.9
Legal Services	\$76.5	\$82.1	\$85.7	\$3.6
Management Services and Stewardship	\$98.9	\$93.4	\$178.3	\$84.9
Multilateral Fund	\$9,575.8	\$9,575.8	\$11,000.0	\$1,424.2
Stratospheric Ozone Protection	\$5,602.7	\$5,642.2	\$5,786.6	\$144.4

### Annual Performance Goals and Measures

#### Restrict Domestic Consumption of Class II HCFCs

In 2004	Restrict domestic consumption of class II HCFCs below 9,906 ODP-weighted metric tonnes (ODP MTs) and restrict domestic exempted production and import of newly produced class I CFCs and halons below 10,000 ODP MTs.
In 2003	Restrict domestic consumption of class II HCFCs below 9,906 ODP-weighted metric tonnes (ODP MTs) and restrict domestic exempted production and import of newly produced class I CFCs and halons below 10,000 ODP MTs.
In 2002	On track to restrict domestic consumption of class II HCFCs below 15,240 ODP-weighted metric tonnes (ODP MTs) and restrict domestic exempted production and import of newly produced class I CFCs and halons below 60,000 ODP MTs.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Domestic Consumption of Class II HCFCs	On Track	<9,906	<9,906	ODP MTs
Domestic Exempted Production and Import of Newly Produced Class I CFCs and Halons	On Track	<10,000	<10,000	ODP MTs

**Baseline:** The base of comparison for assessing progress on the 2003 annual performance goal is the domestic consumption cap of class II HCFCs as set by the Parties to the Montreal Protocol. Each Ozone Depleting Substance (ODS) is weighted based on the damage it does to the stratospheric ozone - this is its ozone-depletion potential (ODP). Beginning on January 1, 1996, the cap was set at the sum of 2.8 percent of the domestic ODP-weighted consumption of CFCs in 1989 plus the ODP-weighted level of HCFCs in 1989. Consumption equals production plus import minus export.

### ***Verification and Validation of Performance Measures***

#### **FY 2004 Performance Measure: Restrict Domestic Consumption of Class II HCFCs Restrict Domestic Exempted Production and Import of Newly Produced Class I CFCs and Halons**

**Performance Database:** The Allowance Tracking System (ATS) database is maintained by the Global Programs Division (GPD). ATS is used to compile and analyze quarterly information on U.S. production, imports, exports, transformations, and allowance trades of ozone-depleting substances (ODS).

**Data Source:** Progress on restricting domestic exempted consumption of Class I CFCs and halons is tracked by monitoring industry reports of compliance with EPA's phaseout regulations. Data are provided by U.S. companies producing, importing, and exporting ODS. Monthly information on domestic production, imports, and exports from the International Trade Commission is maintained in the ATS. Corporate data are typically submitted as quarterly reports. Specific requirements as outlined in the Clean Air Act are available on the Internet:  
<http://www.epa.gov/oar/caa/caa603.txt>

**Methods, Assumptions and Suitability:** Data are aggregated across all U.S. companies for each individual ODS to analyze U.S. total consumption and production.

**QA/QC Procedures:** Reporting and record-keeping requirements are published in 40 CFR Part 82, Subpart A, Sections 82.9 through 82.13. These sections of the Stratospheric Ozone Protection Rule specify the required data and accompanying documentation that companies must submit or maintain on-site to demonstrate their compliance with the regulation.

The ATS data are subject to a Quality Assurance Plan. In addition, the data are subject to an annual quality assurance review, coordinated by OAR staff separate from those on the team normally responsible for data collection and maintenance. The ATS is programmed to ensure consistency of the data elements reported by companies. The tracking system flags inconsistent data for review and resolution by the tracking system manager. This information is then cross-checked with compliance data submitted by reporting companies. The GPD maintains a user's manual for the ATS that specifies the standard operating procedures for data entry and data analysis. Regional inspectors perform inspections and audits on-site at the facilities of producers, importers, and exporters. These audits verify the accuracy of compliance data submitted to EPA through examination of company records.

**Data Quality Reviews:** The Government Accounting Office (GAO) is currently conducting a review of U.S. participation in Five International Environmental Agreements, and is analyzing data submissions from the U.S. under the *Montreal Protocol on Substances that Deplete the Ozone Layer*. No deficiencies are identified.

**Data Limitations:** None. Data are required by the Clean Air Act.

**Error Estimate:** None

**New/Improved Data or Systems:** The GPD continues to explore an improved system whereby direct electronic reporting would be possible.

**References:** See <http://www.epa.gov/ozone/desc.html> for additional information on ODS. See <http://www.unep.ch/ozone/montreal.shtml> for additional information about the Montreal Protocol and <http://www.unmfs.org/> for more information about the Multilateral Fund.

#### **Statutory Authorities**

Clean Air Act (CAA), Title V (42 U.S.C. 7661-7661f), and Title VI (42 U.S.C. 7671-7671q)  
The Montreal Protocol on Substances that Deplete the Ozone Layer

## Objective 4: Protect Public Health and Ecosystems from PBTs and other Toxics.

By 2006, reduce the risks to ecosystems and human health, particularly in Tribal and other subsistence-based communities, from persistent, bioaccumulative toxicants (PBTs) and other selected toxins which circulate in the environment on global and regional scales.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Protect Public Health and Ecosystems from PBTs and other Toxics.	\$5,391.1	\$6,173.6	\$6,680.7	\$507.1
Environmental Program & Management	\$5,391.1	\$6,173.6	\$6,680.7	\$507.1
Total Workyears	31.8	35.6	36.4	0.8

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Facilities Infrastructure and Operations	\$495.4	\$515.9	\$619.2	\$103.3
Global Toxics	\$1,522.8	\$1,415.1	\$1,557.1	\$142.0
Global Trade Issues for Pesticides and Chemicals	\$3,091.2	\$3,125.4	\$3,367.1	\$241.7
Great Lakes	\$537.6	\$0.0	\$0.0	\$0.0
Legal Services	\$382.4	\$410.7	\$428.8	\$18.1
Management Services and Stewardship	\$31.5	\$26.2	\$41.2	\$15.0
POPs Implementation	\$0.0	\$680.3	\$667.3	(\$13.0)

## Annual Performance Goals and Measures

### Risks from Industrial/Commercial Chemicals (INT)

In 2004 Identify and reduce risks associated with international industrial/commercial chemicals.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request 75	chemicals
High Production Volume chemicals with complete Screening Information Data Sets (SIDS) submitted to OECD SIDS Initial Assessment Meeting				

Baseline: The baseline is 40 chemicals per year submitted prior to FY2003.

### Verification and Validation of Performance Measures

Validating measurements under international capacity-building programs presents several challenges. Technical assistance projects, for instance, typically target developing countries, which often do not have sound data collection and analysis systems in place. Several of the Agency's activities under Goal 6, Objective 4 will over time provide environmental information. Non-technical projects, such as assistance in gaining support from donor countries and organizations must rely on more subjective measures of change. Data verification and validation for each of the key measures under Objective 4 are discussed below.

**FY 2003 Congressional Performance Measure:** Develop baseline information on atmospheric transport of POP chemicals to sensitive US ecosystems.

**Performance Database:** None- Manual Collection

**Data Source:** Project Specific

**QA/QC Procedures:** Verification does not involve any pollutant database analysis, but will require objective assessment tasks completed.

**FY 2003 Congressional Performance Measure:** Assist a target country in the Caribbean to address targeted PCB sources.

**Performance Database:** None- Manual Collection

**Data Source:** Project Specific

**QA/QC Procedures:** Verification does not involve any pollutant database analysis, but will require objective assessment tasks completed.

### Statutory Authorities

Pollution Prevention Act (PPA) (42 U.S.C. 13101\_13109)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) sections 3,4,5,6,10,11,18,20,23,24,25,30 and 31 (7 U.S.C. 136a, 126a-1, 126c, 136d, 136h, 136i, 136p, 136r, 136u, 136v, 136w, 136w-5 and 136w-6)

Emergency Planning and Community Right-to-Know Act (EPCRA) section 313 (42 U.S.C. 11023)

Toxic Substances Control Act (TSCA) sections 4, 5, 6, 12, and 13 (15 U.S.C. 2603, 2604, 2605, 2611, 2612)

Clean Water Act (CWA) (33 U.S.C. 1251\_1387)]

Clean Air Act (CAA)

Federal Food, Drug and Cosmetic Act (FFDCA).

Resource Conservation and Recovery Act (RCRA)

North American Agreement on Environmental Cooperation (NAAEC)

1996 Habitat Agenda, paragraph 43bb

U.S./Canada Agreements on Arctic Cooperation

1989 US/USSR Agreement on Pollution

1991 U.S./Canada Air Quality Agreement

1978 U.S./Canada Great Lakes Water Quality Agreement

1909 Boundary Waters Agreement

World Trade Organization Agreements

North American Free Trade Agreement

## Objective 5: Increase Domestic and International Use of Cleaner and More Cost-Effective Technologies.

Through 2005, integrate environmental protection with international trade and investment and increase the application of cleaner and more cost-effective environmental practices and technologies in the United States and abroad to ensure that a clean environment and a strong economy go hand-in-hand.

### Resource Summary (Dollars in Thousands)

	<b>FY 2002 Actuals</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Increase Domestic and International Use of Cleaner and More Cost-Effective Technologies.	\$16,347.9	\$12,601.0	\$12,126.1	(\$474.9)
Environmental Program & Management	\$16,347.9	\$12,601.0	\$12,126.1	(\$474.9)
Total Workyears	57.3	54.7	50.8	-3.9

### Key Program (Dollars in Thousands)

	<b>FY 2002 Enacted</b>	<b>FY 2003 Pres. Bud.</b>	<b>FY 2004 Request</b>	<b>FY 2004 Req. v. FY 2003 Pres Bud</b>
Commission for Environmental Cooperation - CEC	\$3,396.4	\$3,535.3	\$3,937.8	\$402.5
Environment and Trade	\$1,672.6	\$1,844.3	\$1,702.5	(\$141.8)
Facilities Infrastructure and Operations	\$815.6	\$792.7	\$860.2	\$67.5
International Safe Drinking Water	\$0.0	\$0.0	\$348.0	\$348.0
Legal Services	\$675.7	\$725.6	\$757.5	\$31.9
Management Services and Stewardship	\$51.0	\$41.7	\$83.9	\$42.2
Regional and Global Environmental Policy Development	\$1,431.2	\$1,331.3	\$918.0	(\$413.3)
Technical Cooperation with Industrial and Developing Countries	\$4,478.4	\$4,330.1	\$3,518.2	(\$811.9)



## Annual Performance Goals and Measures

### Enhance Institutional Capabilities

- In 2004 Enhance environmental management and institutional capabilities in priority countries.
- In 2003 Enhance environmental management and institutional capabilities in priority countries.
- In 2002 All aspects of this Annual goal were met doing mid-year. Our efforts over the year lead to 2 countries committing to the phase-out of leaded-gasoline. Targeted countries in the Caribbean and in Asian completing the 1st phases of their commitments to the POPs conventions with PCB inventories.

Performance Measures:	FY 2002 Actuals	FY 2003 Pres. Bud.	FY 2004 Request	
Assist in the development or implementation of improved environmental laws or regulations in priority countries.		1	1	countries
Increase the transfer of environmental best practices among the U.S. and its partner countries and build the capacity of developing countries to collect, analyze, or disseminate environmental data.		3	3	countries
Increase the capacity of programs in Africa or Latin America to address safe drinking water quality issues.		1		countries

Baseline: Sound data collection and analysis facilitates improved environmental legislation, enforcement and planning. EPA is helping to build capacity to collect, analyze and disseminate environmental data for use in priority developing countries to more effectively target resources for environmental protection.

### Verification and Validation of Performance Measures

Validating measurements under international capacity-building programs presents several challenges. Technical assistance projects, for instance, typically target developing countries, which often do not have sound data collection and analysis systems in place. Several of the Agency's activities under Goal 6, Objective 5 attempt to improve this data gathering and analysis process. Non-technical projects, such as assistance in regulatory reform, frequently must rely on more subjective measures of change, such as the opinions of project staff or reviews by third-party organizations, including other U.S. government organizations, in judging the long-term efficacy of the assistance provided. Data verification and validation for each of the key measures under Objective 5 are discussed below.

**FY 2004 External Performance Measure:** Assist in the development or implementation of improved environmental laws or regulations in developing countries.

**Performance Database:** None. Output measure. Manual collection of information to track measure.

**Data Source:** Project Specific

**QA/QC Procedures:** Verification does not involve any pollutant database analysis, but will require objective assessment of: (1) tasks completed, (2) compliance with new regulation, and (3) progress toward project goals and objectives.

EPA works with developing countries to improve environmental laws and regulations. Tracking development and implementation of legislation presents few challenges because EPA project staff maintain close contact with their counterparts and any changes become part of a public record. Assessing the quality of the new or revised laws/regulations, the level of public participation and support for stronger regulations, and the long-term social impacts of legislation is more subjective. Aside from feedback from Agency project staff, EPA relies, in part, on feedback from its counterparts in the target countries and regions and from nongovernmental organizations (NGOs) and other third parties in gauging the efficacy its international legal and regulatory capacity-building. Because EPA works to establish long-term relationships with priority countries, the Agency is often able to assess environmental improvement in these countries and regions for a number of years following legal assistance efforts.

**FY 2004 External Performance Measure:** Through the CEC, develop a core set of children's environmental health indicators and economic valuation report of children's environmental health by September 2004.

**Performance Database:** None. Output measure. Manual collection of information to track measure.

**Data Source:** Project Specific

**QA/QC Procedures:** Verification does not involve any pollutant database analysis, but will require objective assessment of tasks completed and consensus by the Commission for Environmental Cooperation's (CEC) children's environmental health trilateral team.

**Statutory Authorities**

EPCRA section 313 (42 U.S.C. 11023)

PPA (42 U.S.C. 13101-13109)

World Trade Organization Agreements

North American Free Trade Agreement

North American Agreement on Environmental Cooperation

US-Canada Agreements

The Boundary Waters Treaty of 1909

1987 Great Lakes Water Quality Agreement

1997 Canada-U.S. Great Lakes Bi-national Toxics Strategy